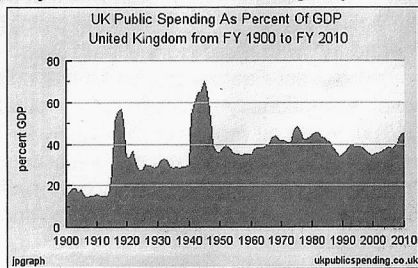


CLIMATE EMERGENCY

It looks ever more likely that that we are – already - **hitting a tipping point in the arctic** which will render all the gradualist predictions of emissions-related warming redundant. The very inadequate measures that we are taking (which are – at their best – anchored to those gradualist predictions) look to set us on a course which, far from averting the threat, will crash – painfully and explosively - head on with the fast changing reality of the physical world.

It is time to face up to this reality, to put science and physical-world reality before political considerations or convenience. The fact is that we need a **paradigm shift in the scale of our response to the climate crisis**.

This is a national and global emergency of the utmost emergency. On the last national emergency which we faced - the Second World war - we (and the Americans) spent something like 30 or 40 % of GDP. That – in financial terms – is the scale of response we need to be thinking in terms of (Stern's estimate of 1% of GDP per year to deal with climate change represents a typical failure to get to grips with the true scale of what we are up against). There are some who are already saying that we need to embark on the frighteningly dangerous and desperate measure of large scale geoengineering. Whether they are right or wrong what we need *in any case* is the elevation of the climate crisis to priority number one, and a much more radical programme of faster and deeper emission cuts. Such a concentrated effort to decarbonise the economy could – incidentally – put an end to economic recession just as surely as the war effort of the last century put an end to the Great Recession of the 30s. But it will only happen if there is a real effort to mobilise society against the climate threat, led, fostered and encouraged by government.



What is absolutely clear is that the current trend, bolstered by an increasingly right-wing Tory Party, towards slashing what meagre efforts we are making to avert catastrophic climate change in the profoundly misguided belief that such efforts 'get in the way' of dealing with the "real" problem, the economy, are a recipe for national and global suicide. The right wing of the Tory Party is suffering from a milder form of the disease that plagues the American right, characterised by short-termism, shallow or non-existent understanding of the climate crisis and finally outright rejection of scientific reality where it impinges on their ideological comfort zone. On this critical issue, above all others, it is imperative that the **Liberal Democrats stand up for environmental realism**

against Tory idiocy and short termism.

Finally it is possible for MPs to make a public stand for making that paradigm shift in the scale of our response to the climate crisis, that we really need, by signing **Early Day Motion 303** (Action on Climate Change) that calls for a target of net zero carbon by 2030 and 10% cuts per annum, (the kind of figure suggested by the Tyndall Centre for Climate Change Research) amongst other things. The first step towards narrowing the huge gap between the politics and the science of climate change is actually recognising the scale of that gap - and signing EDM 303 is one way of doing that. If you're an MP please sign it – or otherwise write to your MP to sign it. The situation could not be more urgent and we need to do absolutely everything we possibly can.

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CAMPAIGN AGAINST CLIMATE CHANGE



ARCTIC MELTDOWN

We need to act much faster to avoid a head on collision with catastrophic climate change



We are witnessing a total collapse of arctic sea ice. This summer the record minimum extent for Arctic sea ice was broken (according to the US National Snow and Ice Data Centre, the most respected authority) on August 24th an unbelievable 3 weeks before we would normally see the absolute minimum for the year. This means that a month later we have seen the record not just broken but obliterated. The record that was broken was from 2007 itself a shocking and exceptional year that set alarms ringing amongst the scientific community. **What we are now witnessing is not just a disturbing trend but a precipitate crash in summer-time arctic sea ice.**

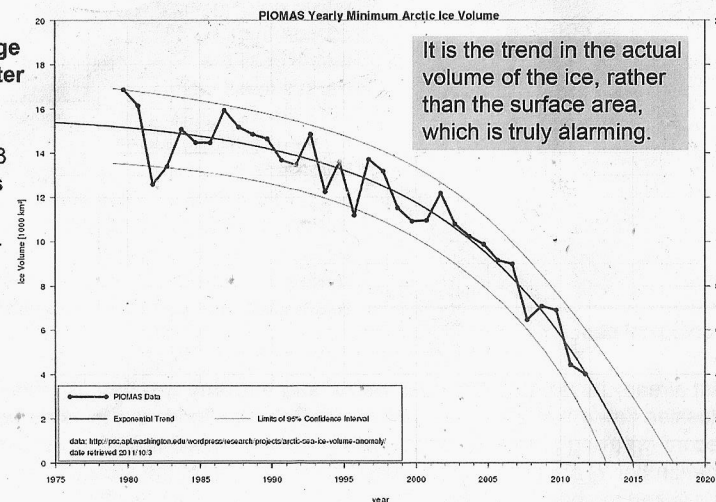
Professor Peter Wadhams, Professor of Ocean Physics and Head of the Polar Oceans Physics Group at Cambridge University has predicted – since 2008 – the more or less **complete disappearance of arctic sea ice at the end of summer, by 2015**. For this "seemingly radical prediction" (based, however on

"a simple extrapolation of a clear and measured trend" he insists) Professor Wadhams says he was "vilified by scientific colleagues". "I am pleased to see", however, he now adds "these same colleagues now jumping on the bandwagon and supporting my prediction". And indeed this summer's precipitate crash of sea ice extent makes his prediction now seem entirely credible.

This means that what, a short while ago, was predicted not to happen till the end of the century is happening, essentially

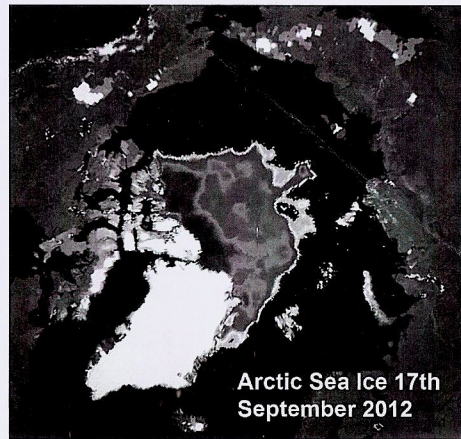
- now. It is abundantly clear that climate change is happening much faster than anyone predicted.

And its happening up to 3 or 4 times faster than it is over most of the rest of the planet *in the arctic*. Here the white snow-ice surface maintains a level of planetary 'reflectivity' (through the "albedo effect") that is important in keeping the planet cool – but as the ice disappears the dark liquid sea surface





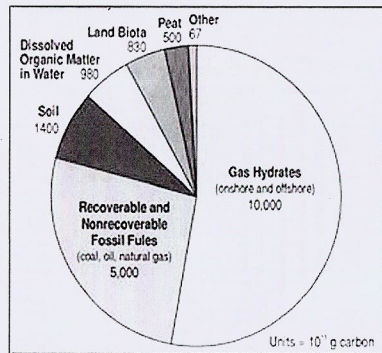
Arctic Sea Ice 17th September 1979



Arctic Sea Ice 17th September 2012

increasingly absorbs heat rather than reflects it. Professor Wadhams has calculated that already diminished sea ice during the arctic summer has accounted for a degree of warming (through increased absorption of solar radiation) equivalent to that produced by 20 years of human emissions of heat-trapping (or 'greenhouse') gases. This raises the frightening prospect that *already* climate change is escalating beyond our potential ability to control it.

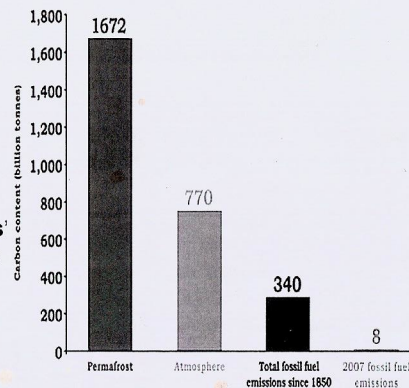
In any case the fear has long been that a warming arctic will lead to **accelerated release of methane** (a greenhouse gas 20 or so times more powerful than CO₂ – even if more short-lived) from the permafrost in the land-masses surrounding the arctic ocean. This contains more than twice as much carbon (see diagram) than the atmosphere currently holds. This is not to mention the



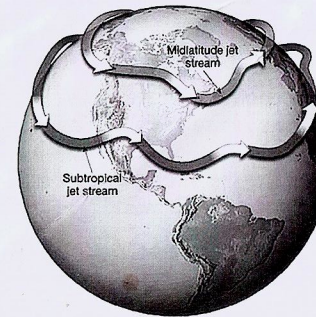
geological past.

ocean bed **'methane hydrates'** which contain more carbon than exists in all the earth's fossil fuels (see diagram left). These are most

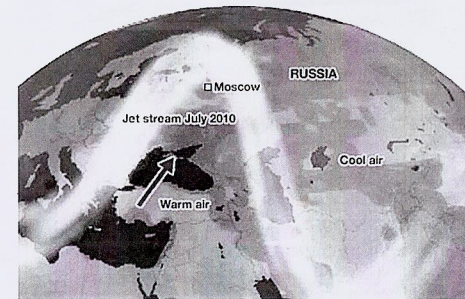
vulnerably close to the surface in the East Siberian coastal shelf where methane has already been found leaking to the surface. It is the firing of what Nasa scientist James Hansen calls the 'methane hydrate gun' (ie mass releases of methane from the sub-sea hydrates) that has been associated with catastrophic extinction events deep in the



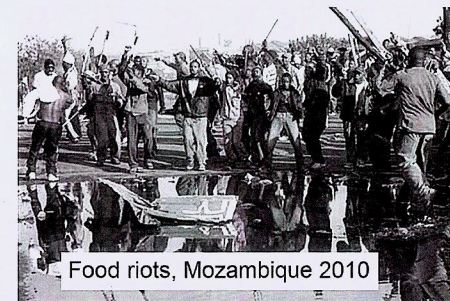
But already in the here and now **'weird' and extreme weather** like this year's US drought or the Russian drought of 2010 – as well as the Pakistan floods in the same year and even this year's record-breakingly rainy summer in the UK or the record-breakingly cold spell in December 2010 (remember ?) are linked to the exceptional warming of the arctic. This is because all these events are linked to abnormal behaviour of the jet stream, which itself has been caused by the



place producing, locally, exceptionally extended periods of hot weather, rainy weather etc.. whilst at the same time (like a river torrent as it reaches the plain) it becomes more 'meandery', with more North-South 'wobbles' of the prevailing West-East air stream so that cold arctic air moves exceptionally far South (as in our cold December of 2010) or warm air moves exceptionally far North (so Western Greenland was exceptionally warm in December 2010, matching our exceptionally cold spell in the UK). The blocking pattern which saw warm African air drawn up



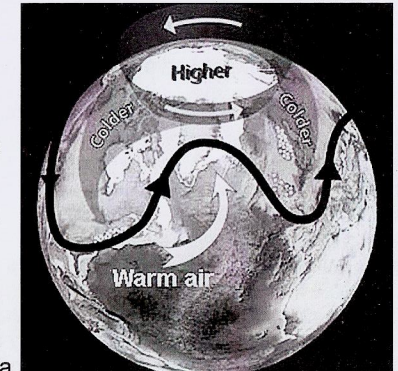
With this weird weather comes more sinister impacts: the Russian drought provoked Putin to put an embargo on grain exports which saw prices rocket and resultant food riots in places like Mozambique. We have not seen the full impact of the US drought yet but food prices are rising and once again it looks like



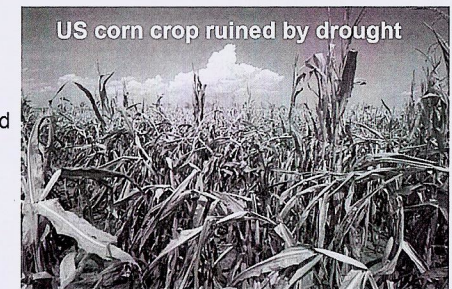
Food riots, Mozambique 2010

disproportionately rapid warming of the arctic – according to recent studies.

In a nutshell: the jet stream derives its power from the temperature differential (and consequent pressure differential) between the arctic and temperate air masses. As this is reduced due to the disproportionately rapid warming of the arctic so the jet stream becomes weaker and more sluggish leading to 'blocking events' where it gets stuck in the same



over Russia beneath one exceptionally pronounced Northwards 'meander' of the jet stream, (causing the Russian heatwave) also saw cold moist air drawn down over Pakistan behind a corresponding Southwards meander – meeting the monsoon winds and causing exceptionally heavy rainfall and the Pakistan floods. *For a fuller explanation of this with helpful links see* <http://www.campaigncc.org/funnyweather>



the world's poorest who will suffer. As the Arctic melt accelerates -- due to the albedo positive feedback loop – we can expect to see yet more extreme weather and the world's poorest suffering increasingly from hunger and malnutrition-related diseases as they can no longer afford basic foodstuffs. The catastrophic arctic melt threatens apocalyptic impacts for us all but for some apocalypse is in the here and now....